What Is Claimed Is:

1. A device for measuring clearance distance and speed of objects using radar pulses, having the following features:

a receiver-side mixer (8) which correlates received radar pulses with delayed transmitter-side radar pulses,

a control device (7) for specifying range gates within which radar pulses that are to be supplied to the mixer (8) are continuously changeable increasingly and/or decreasingly with respect to their pulse delay,

a switchover device (10) for implementing a plurality of operating modes, especially for holding constant the transmitter-side radar pulses that are able to be supplied to the mixer (8) with respect to their delay, in order, particularly, to measure Doppler frequencies, for resetting or raising the delay to a current or new starting value, and/or for the continuous delay, particularly into a direction that runs opposite to a preceding change,

an evaluating device (11) for distance and speed values in the light of the mixer output signals.

2. The device as recited in Claim 1,

wherein the evaluating device (11) is designed to prognosticate speed values from established distance changes, which are verified or finely corrected in the light of measured Doppler frequencies.

3. The device as recited in Claim 1 or 2,

wherein the evaluating device (11) is designed to determine the limits of the range gates, in the light of the ascertained speed values.

4. The device as recited in one of Claims 1 through 3,

wherein the switchover device (10) is controllable by the control device (7) in such a way that, in response to a range gate change, a Doppler frequency measurement may be made by holding constant the delay of the transmitter-side radar pulses that are able to be supplied to the mixer (8).

5. The device as recited in one of Claims 1 through 4,

wherein the evaluating device (11) is designed to detect a moved object based on an increasing speed gradient/amplitude.

6. The device as recited in one of Claims 1 through 5,

wherein the evaluating device (11) is designed to detect the position of a moving object based on the maximum amplitude of the Doppler frequency measurement.

7. The device as recited in Claim 6,

wherein the evaluating device (11) is designed to estimate a speed offset for a detected position of an object.

8. The device as recited in one of Claims 1 through 7,

wherein the switchover device (10) is controllable in an event-triggered manner, i.e. a switchover to another operating mode, for instance, holding constant the delay of the transmitter-side radar pulses supplied to the mixer (8) in the case of the previous variation of the delay or the changing of the delay into the opposite direction based on a detected reflection.

9. The device as recited in one of Claims 1 through 8,

wherein, for the plausibility check of an object detection in response to a detected reflection, the delay of the transmitter-side radar pulses that are able to be supplied to the mixer (8) are changeable in the opposite direction in such a way that, in particular, an additional reflection may be obtained which is able to be correlated with the previously detected reflection.

10. The device as recited in Claim 9,

wherein the evaluating device (11) is designed to draw up a clearance distance history from clearance distance measurement, and to detect object patterns in the light of this clearance distance history.

11. The device as recited in one of Claims 1 through, wherein

the evaluating device (11) is designed to draw up estimated values for the speed measurements for expected crash situations.

12. The device as recited in Claim 11,

wherein the evaluating device (11) is designed, in response to expected crash situations, to control the switchover device (10) into the operating mode of holding constant the radar pulses with respect to their delay, in order to measure Doppler frequencies.